

SH&G 13155 BP-33C  
CENTRAL INTELLIGENCE AGENCY  
HEADQUARTERS EXPANSION  
BID PACKAGE 3SC  
SUPPLY CONTRACT - CHILLERS

SECTION 00110 PAGE 1  
DATE 12/15/83 TIME 18.142  
SPECIAL CONDITIONS  
(SUPPLY CONTRACT)

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*Chillers*

- 1 1) 1. DEFINITIONS
- 2 2) THE CONTRACT DOCUMENTS
- 3 3) THE CONTRACT DOCUMENTS CONSIST OF THE SUPPLY CONTRACT (BETWEEN THE  
4) GOVERNMENT AND THE CONTRACTOR), THE CONDITIONS OF THE CONTRACT  
5) (GENERAL AND SUPPLEMENTAL PROVISIONS, SPECIAL CONDITIONS, AND RELATED  
6) DOCUMENTS) AND THE SPECIFICATIONS - ALL AS LISTED IN THE TABLE OF  
7) CONTENTS, AND ALL AMENDMENTS ISSUED PRIOR TO AND ALL CHANGES ISSUED  
8) AFTER EXECUTION OF THE CONTRACT. CHANGES ARE DEFINED IN CLAUSE NO. 2  
9) OF THE GENERAL PROVISIONS.
- 2 10) THE PROJECT
- 3 11) THE PROJECT IS THE TOTAL CONSTRUCTION OF WHICH THE SUPPLIES FURNISHED  
12) UNDER THE CONTRACT DOCUMENTS ARE A PART.
- 2 13) THE ARCHITECT
- 3 14) THE ARCHITECT IS:
- 7 15) SMITH, HINCHMAN & GRYLLS ASSOCIATES, INC.  
16) 455 WEST FORT STREET  
17) DETROIT, MICHIGAN 48226
- 3 18) THE TERM "ARCHITECT" MEANS THE ARCHITECT OR HIS AUTHORIZED  
19) REPRESENTATIVE.
- 2 20) THE CONTRACTOR
- 3 21) THE CONTRACTOR IS THE INDIVIDUAL, PARTNERSHIP, JOINT VENTURE, OR  
22) CORPORATION NAMED IN THE SUPPLY CONTRACT, REFERRED TO FROM TIME TO  
23) TIME, AS "SUPPLY CONTRACTOR", FOR PURPOSES OF CLARIFICATION.
- 2 24) THE INSTALLING CONTRACTOR

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3 25) THE INSTALLING CONTRACTOR IS THE ORGANIZATION WHOSE CONTRACT WITH THE  
26) GOVERNMENT FOR WORK ON THE PROJECT INCLUDES RESPONSIBILITY FOR  
27) RECEIVING, TRANSPORTING AFTER RECEIPT, STORING AS APPROPRIATE AND  
28) INSTALLING THE SUPPLIES. THE INSTALLING CONTRACTOR WILL BE THE  
29) CONTRACTOR FOR BID PACKAGE 3 - POWERHOUSE.

2 30) BENEFICIAL ACCEPTANCE

3 31) BENEFICIAL ACCEPTANCE FOR ANY ITEM OF SUPPLIES IS THE DATE THE  
32) GOVERNMENT PLACES THAT ITEM IN USE FOR ITS INTENDED PURPOSE,  
33) SUBSEQUENT TO ONSITE OPERATION FOR START-UP AND TESTING.

2 34) MISCELLANEOUS DEFINITIONS

3 35) THE TERM "SUPPLIES" SHALL BE READ TO INCLUDE, WITHOUT LIMITATION,  
36) RAW MATERIALS, COMPONENTS INTERMEDIATE ASSEMBLIES AND END PRODUCTS TO  
37) BE FURNISHED UNDER THE CONTRACT. (REFER TO CLAUSE NO. 5 OF THE GENERAL  
38) PROVISIONS).

3 39) THE TERM "PER" MEANS "IN ACCORDANCE WITH THE REQUIREMENTS OF".

3 40) THE TERM "AS APPROVED" MEANS "OR EQUAL" AS DESCRIBED IN ARTICLE  
41) NO. 32 OF THE GSA SUPPLEMENTAL PROVISIONS.

1 42) 2. NONPUBLICITY

2 43) IT IS A SPECIFIC CONDITION OF THE CONTRACT THAT THE CONTRACTOR SHALL NOT  
44) USE OR ALLOW TO BE USED ANY ASPECT OF THIS AGREEMENT FOR PUBLICITY OR  
45) ADVERTISEMENT PURPOSES.

2 46) IT IS FURTHER UNDERSTOOD THAT THIS OBLIGATION SHALL NOT EXPIRE UPON  
47) COMPLETION OR TERMINATION OF THE CONTRACT BUT WILL CONTINUE INDEFINITELY.

2 48) THE CONTRACTOR MAY REQUEST A WAIVER OR RELEASE FROM THE FOREGOING BUT  
49) SHALL NOT DEVIATE THEREFROM UNLESS SO AUTHORIZED IN WRITING BY THE  
50) GOVERNMENT.

1 51) 3. BIDDING REQUIREMENTS

2 52) BIDDER SHALL ENTER IN SECTION 00033ATTA, "ATTACHMENT 'A' TO SF33  
53) (CHILLERS)", ALL INFORMATION REQUESTED. REFER TO STANDARD FORM 33-A.

3 54) BID PRICE SHALL BE A LUMP SUM FOR DELIVERY OF THE SPECIFIED SUPPLIES  
55) F.O.B. PROJECT SITE BY THE DATE SPECIFIED IN SECTION 01310, "SCHEDULE  
56) AND TIME OF COMPLETION", AND SHALL INCLUDE ALL COSTS ASSOCIATED WITH  
57) THE SPECIFIED START-UP SERVICES AND TRAINING OF GOVERNMENT OPERATORS.

4 58) THE BIDDER SHALL AFFIRM IN HIS BID THAT THE BID PRICE INCLUDES  
59) COSTS FOR THE AFOREMENTIONED START-UP SERVICES AND TRAINING OF  
60) GOVERNMENT OPERATORS AT THE RESPECTIVE NUMBER OF MAN-DAYS STATED IN  
61) ATTACHMENT 'A' TO SF33 FOR EACH FUNCTION.

3 62) RESPECTIVE UNIT PRICE AMOUNTS ENTERED UNDER THE PAYMENT SCHEDULE SHALL  
63) REFLECT THE SPECIFIED REQUIREMENT THAT WARRANTIES SHALL, IN EACH CASE,  
64) BEGIN ON THE DATE OF BENEFICIAL ACCEPTANCE. THE TOTAL OF THE PRICE  
65) EXTENSIONS SHALL EQUAL THE BID PRICE.

3 66) IN ESTABLISHING DATE BY WHICH BIDDER MUST RECEIVE SHOP DRAWINGS,  
67) PRODUCT DATA AND RELATED SUBMITTALS IN ORDER TO MEET THE SPECIFIED  
68) DELIVERY DATE, BIDDER SHALL CONSIDER THE FACT THAT FOR EACH SUBMITTAL,  
69) ARCHITECT WILL REQUIRE 14 CALENDAR DAYS FROM DATE SUBMITTAL ENTERS  
70) ARCHITECT'S OFFICE UNTIL THE SUBMITTAL LEAVES TO RETURN TO THE  
71) CONTRACTOR.

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4. FOREIGN OWNERSHIP CONTROL OR INFLUENCE

VENDORS RESPONDING TO THIS REQUEST FOR PROPOSAL (RFP) ARE ADVISED THAT IT IS THE GOVERNMENT'S INTENT TO SECURE SERVICES OR EQUIPMENT FROM FIRMS WHICH ARE NOT UNDER FOREIGN OWNERSHIP, CONTROL, OR INFLUENCE (FOCI) OR WHERE ANY FOCI MAY, IN THE OPINION OF THE GOVERNMENT ADVERSELY IMPACT ON GOVERNMENT SECURITY REQUIREMENTS. ACCORDINGLY, ALL FIRMS RESPONDING TO THIS RFP OR INITIATING PERFORMANCE OF A CONTRACT ARE REQUIRED TO SUBMIT A DOD FORM 441S (CERTIFICATE PERTAINING TO FOREIGN INTERESTS) WITH THEIR PROPOSAL OR PRIOR TO CONTRACT PERFORMANCE (AS APPROPRIATE). DOD FORM 441S ENTRIES SHALL SPECIFY, WHERE NECESSARY, THE IDENTITY, NATURE, DEGREE, AND IMPACT OF ANY FOCI ON THEIR ORGANIZATION OR ACTIVITIES.

NOTWITHSTANDING THE LIMITATION ON CONTRACTING WITH A VENDOR UNDER FOCI IDENTIFIED ABOVE, THE GOVERNMENT RESERVES THE RIGHT TO CONTRACT WITH SUCH FIRMS UNDER APPROPRIATE ARRANGEMENTS, WHEN IT DETERMINES THAT SUCH CONTRACTS WILL BE IN THE BEST INTEREST OF THE GOVERNMENT.

5. ADMINISTRATION OF THE CONTRACT

THE GOVERNMENT

THE CONTRACT WILL BE ADMINISTERED BY THE CONTRACTING OFFICER ON BEHALF OF THE UNITED STATES OF AMERICA (REFERRED TO THROUGHOUT THE CONTRACT DOCUMENTS AS THE GOVERNMENT).

THE ARCHITECT

THE ARCHITECT, (AS REQUIRED BY SEPARATE CONTRACT) UNDER SUPERVISION OF THE GOVERNMENT, WILL, AS PERTINENT TO THIS SUPPLY CONTRACT:

PROVIDE REVIEW AND APPROVAL OF ALL SHOP DRAWINGS, PRODUCT DATA, SAMPLES, SCHEDULES, ETC., SUBMITTED BY THE CONTRACTOR.

REVIEW AND CERTIFY THE VALIDITY OF THE CONTRACTOR'S APPLICATIONS FOR PAYMENT.

COMMUNICATIONS

THE CONTRACTOR SHALL FORWARD ALL COMMUNICATIONS TO THE ARCHITECT THROUGH THE CONTRACTING OFFICER.

6. LIQUIDATED DAMAGES

REFER TO ARTICLE 11 -- DEFAULT, OF THE GENERAL PROVISIONS. REDESIGNATE PARAGRAPHS 11(F) AND 11(G) THEREIN AS 11(G) AND 11(H) RESPECTIVELY, AND INSERT THE FOLLOWING:

(F) (I) IN THE EVENT THE GOVERNMENT EXERCISES ITS RIGHT OF TERMINATION AS PROVIDED IN PARAGRAPH (A) ABOVE, THE CONTRACTOR SHALL BE LIABLE TO THE GOVERNMENT FOR EXCESS COSTS AS PROVIDED IN PARAGRAPH (B) ABOVE AND, IN ADDITION, FOR LIQUIDATED DAMAGES, IN THE AMOUNT OF \$500.00 AS FIXED, AGREED, AND LIQUIDATED DAMAGES FOR EACH CALENDAR DAY OF DELAY, UNTIL SUCH TIME AS THE GOVERNMENT MAY REASONABLY OBTAIN DELIVERY OF SIMILAR SUPPLIES OR PERFORMANCE OF SIMILAR SERVICES.

(II) IF THE CONTRACT IS NOT SO TERMINATED, NOTWITHSTANDING DELAY, AS PROVIDED IN PARAGRAPH (A) ABOVE, THE CONTRACTOR SHALL CONTINUE PERFORMANCE AND BE LIABLE TO THE GOVERNMENT FOR SUCH LIQUIDATED DAMAGES FOR EACH CALENDAR DAY OF DELAY UNTIL THE SUPPLIES ARE DELIVERED OR SERVICES PERFORMED.

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- 7 121) (III) THE CONTRACTOR SHALL NOT BE LIABLE FOR LIQUIDATED  
122) DAMAGES FOR DELAYS DUE TO CAUSES WHICH WOULD RELIEVE  
123) HIM FROM LIABILITY FOR EXCESS COSTS AS PROVIDED IN PARA-  
124) GRAPH (C) OF THIS CLAUSE.
- 1 125) 7. WARRANTIES AND GUARANTIES
- 2 126) WARRANTY
- 3 127) THE CONTRACTOR WARRANTS TO THE GOVERNMENT THAT ALL SUPPLIES FURNISHED  
128) UNDER THIS CONTRACT WILL BE NEW UNLESS OTHERWISE SPECIFIED, AND THAT  
129) ALL WORK WILL BE OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN  
130) CONFORMANCE WITH THE CONTRACT DOCUMENTS. ALL WORK NOT CONFORMING TO  
131) THESE REQUIREMENTS, INCLUDING SUBSTITUTIONS NOT PROPERLY APPROVED AND  
132) AUTHORIZED, MAY BE CONSIDERED DEFECTIVE. IF REQUIRED BY THE CONTRACT  
133) DOCUMENTS OR THE CONTRACTING OFFICER, THE CONTRACTOR SHALL FURNISH  
134) SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF SUPPLIES  
135) FURNISHED. THIS WARRANTY IS NOT LIMITED BY THE PROVISIONS FOR  
136) CORRECTION OF DEFECTIVE OR NON-CONFORMING WORK HEREIN.
- 2 137) CORRECTION OF DEFECTS
- 3 138) IF, WITHIN ONE YEAR AFTER BENEFICIAL ACCEPTANCE BY THE OWNER OF  
139) DESIGNATED SUPPLIES OR WITHIN SUCH LONGER PERIOD OF TIME AS MAY BE  
140) PRESCRIBED BY LAW OR BY THE TERMS OF ANY APPLICABLE SPECIAL WARRANTY  
141) REQUIRED BY THE CONTRACT DOCUMENTS, ANY SUPPLIES ARE FOUND TO BE  
142) DEFECTIVE OR NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE  
143) CONTRACTOR SHALL MAKE CORRECTION PROMPTLY AFTER RECEIPT OF A WRITTEN  
144) NOTICE FROM THE GOVERNMENT TO DO SO, UNLESS IN THE PUBLIC INTEREST THE  
145) GOVERNMENT CONSENTS TO ACCEPT SUCH SUPPLIES WITH AN APPROPRIATE  
146) ADJUSTMENT IN CONTRACT PRICE. THIS OBLIGATION SHALL SURVIVE  
147) TERMINATION OF THE CONTRACT.
- 2 148) PRIOR TO FINAL PAYMENT, SUBMIT TO THE CONTRACTING OFFICER A WARRANTY FOR  
149) EACH GROUP OF SUPPLIES DIFFERENTIATED BY A WARRANTY PERIOD (DIFFERING  
150) STARTING AND ENDING DATES). EACH WARRANTY SHALL BE IN TRIPLICATE IN THE  
151) FORM SHOWN IN SECTION 00110A, "APPENDIX 'A' WARRANTY".
- 1 152) 8. LAWS, ORDINANCES AND REGULATIONS
- 2 153) THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL  
154) LAWS, ORDINANCES, AND REGULATIONS, AND SHALL REQUIRE SUCH COMPLIANCE, BY  
155) ALL OTHER PERSONS WITH WHOM HE SHALL ENTER INTO ANY CONTRACT PERTAINING  
156) TO THE WORK. THE CONTRACTOR SHALL BE LIABLE FOR AND INDEMNIFY AND HOLD  
157) HARMLESS THE GOVERNMENT, AND THE ARCHITECT AND THEIR RESPECTIVE  
158) CONSULTANTS, AGENTS AND EMPLOYEES FROM ANY AND ALL LIABILITY OR DAMAGE  
159) ARISING BY REASON OF THE BREACH OF THE PROVISIONS HEREIN SET FORTH.
- 2 160) IT IS NOT THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE CERTAIN THAT THE  
161) CONTRACT DOCUMENTS ARE IN ACCORDANCE WITH APPLICABLE LAWS, ORDINANCES AND  
162) REGULATIONS. HOWEVER, IF THE CONTRACTOR OBSERVES THAT ANY OF THE CONTRACT  
163) DOCUMENTS ARE AT VARIANCE THEREWITH IN ANY RESPECT, HE SHALL PROMPTLY  
164) NOTIFY THE CONTRACTING OFFICER AND ANY NECESSARY CHANGES SHALL BE  
165) ACCOMPLISHED BY APPROPRIATE CHANGE ORDER.
- 2 166) IF THE CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO SUCH  
167) LAWS, ORDINANCES, AND REGULATIONS, AND WITHOUT SUCH NOTICE TO THE  
168) CONTRACTING OFFICER, HE SHALL ASSUME FULL RESPONSIBILITY THEREFOR AND  
169) SHALL BEAR ALL COSTS ATTRIBUTABLE THERETO.

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## 9. PATENT INDEMNITY

1 170)

2 171) REFER TO CLAUSE NO. 13 OF THE SUPPLEMENTAL PROVISIONS. EDIT INTERNALLY AS  
172) FOLLOWS:

3 173) FOLLOWING THE WORD "EMPLOYEES" IN THE FIRST SENTENCE, INSERT THE  
174) PHRASE "AND THE ARCHITECT, AND HIS CONSULTANTS, AGENTS AND  
175) EMPLOYEES".

## 10. INSURANCE

1 176)

2 177) PROPERTY INSURANCE

3 178) THE CONTRACTOR SHALL PURCHASE AND MAINTAIN PROPERTY INSURANCE FOR THE  
179) FULL CONTRACT VALUE THEREOF UPON SUPPLIES FOR WHICH ANY PAYMENT HAS  
180) BEEN MADE AND SUPPLIES WHICH HAVE BEEN DELAYED IN SHIPMENT AT THE  
181) GOVERNMENT'S REQUEST.

3 182) THE CONTRACTOR SHALL FILE TWO CERTIFIED COPIES OF ALL POLICIES WITH  
183) THE CONTRACTING OFFICER BEFORE EXPOSURE TO LOSS CAN OCCUR. IF THE  
184) GOVERNMENT IS DAMAGED BY THE FAILURE OF THE CONTRACTOR TO MAINTAIN  
185) SUCH INSURANCE AND TO SO NOTIFY THE CONTRACTING OFFICER, THEN THE  
186) CONTRACTOR SHALL BEAR ALL REASONABLE COSTS PROPERLY ATTRIBUTABLE  
187) THERETO.

2 188) TRANSIT INSURANCE

3 189) THE CONTRACTOR SHALL PURCHASE AND MAINTAIN DURING SHIPMENT TRANSIT  
190) INSURANCE FOR THE FULL CONTRACT VALUE THEREOF UPON SUPPLIES FOR WHICH  
191) ANY PAYMENT HAS BEEN MADE.

## 11. SUCCESSORS AND ASSIGNS

1 192)

2 193) THE GOVERNMENT AND THE CONTRACTOR EACH BINDS ITSELF, ITS PARTNERS,  
194) SUCCESSIONS, ASSIGNS AND LEGAL REPRESENTATIVES TO THE OTHER PARTY HERETO  
195) AND TO THE PARTNERS, SUCCESSIONS, ASSIGNS AND LEGAL REPRESENTATIVES OF  
196) SUCH OTHER PARTY IN RESPECT TO ALL COVENANTS, AGREEMENTS AND OBLIGATIONS  
197) CONTAINED IN THE CONTRACT DOCUMENTS. NEITHER PARTY TO THE CONTRACT SHALL  
198) ASSIGN THE CONTRACT OR SUBLET IT AS A WHOLE WITHOUT THE WRITTEN CONSENT  
199) OF THE OTHER.

## 12. WRITTEN NOTICE

1 200)

2 201) WRITTEN NOTICE SHALL BE DEEMED TO HAVE BEEN DULY SERVED IF DELIVERED IN  
202) PERSON TO THE INDIVIDUAL OR MEMBER OF THE FIRM OR ENTITY OR TO AN OFFICER  
203) OF THE CORPORATION FOR WHOM IT WAS INTENDED, OR IF DELIVERED AT OR SENT  
204) BY REGISTERED OR CERTIFIED MAIL TO THE LAST BUSINESS ADDRESS KNOWN TO HIM  
205) WHO GIVES THE NOTICE.

## 13. CLAIMS FOR DAMAGES

1 206)

2 207) SHOULD EITHER PARTY TO THE CONTRACT SUFFER INJURY OR DAMAGE TO PERSON OR  
208) PROPERTY BECAUSE OF ANY ACT OR OMISSION OF THE OTHER PARTY OR OF ANY OF  
209) HIS EMPLOYEES, AGENTS OR OTHERS FOR WHOSE ACTS HE IS LEGALLY LIABLE,  
210) CLAIM SHALL BE MADE IN WRITING TO SUCH OTHER PARTY WITHIN A REASONABLE  
211) TIME AFTER THE FIRST OBSERVANCE OF SUCH INJURY OR DAMAGE.

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1 212) 14. RIGHTS AND REMEDIES

2 213) THE DUTIES AND OBLIGATIONS IMPOSED BY THE CONTRACT DOCUMENTS AND THE  
214) RIGHTS AND REMEDIES AVAILABLE THEREUNDER SHALL BE IN ADDITION TO AND NOT  
215) A LIMITATION OF ANY DUTIES, OBLIGATIONS, RIGHTS AND REMEDIES OTHERWISE  
216) IMPOSED OR AVAILABLE BY LAW.

2 217) NO ACTION OR FAILURE TO ACT BY THE CONTRACTING OFFICER, ARCHITECT OR  
218) CONTRACTOR SHALL CONSTITUTE A WAIVER OF ANY RIGHT OR DUTY AFFORDED ANY OF  
219) THEM UNDER THE CONTRACT, NOR SHALL ANY SUCH ACTION OR FAILURE TO ACT  
220) CONSTITUTE AN APPROVAL OF OR ACQUIESCENCE IN ANY BREACH THEREUNDER,  
221) EXCEPT AS MAY BE SPECIFICALLY AGREED IN WRITING.

1 222) 15. ASSIGNMENT OF CONTRACT

2 223) THE GOVERNMENT RESERVES AND IS HEREBY GRANTED THE RIGHT TO ASSIGN THIS  
224) CONTRACT TO THE INSTALLING CONTRACTOR AND MAKE IT A PART OF THE CONTRACT  
225) FOR BID PACKAGE 3. THE SUPPLY CONTRACTOR AGREES THAT, WHEN SUCH  
226) ASSIGNMENT IS MADE, HE WILL WORK UNDER THE INSTALLING CONTRACTOR IN THE  
227) SAME MANNER AS HE WOULD HAD THE CONTRACT BEEN ORIGINALLY AWARDED TO HIM  
228) BY THE INSTALLING CONTRACTOR, AND THAT HE WILL BE BOUND TO AND ASSUME  
229) TOWARD THE INSTALLING CONTRACTOR ALL THE OBLIGATIONS AND RESPONSIBILITIES  
230) THAT HE, BY HIS CONTRACT, ASSUMES TOWARD THE GOVERNMENT. IN CASE OF  
231) ASSIGNMENT, PAYMENTS TO THE SUPPLY CONTRACTOR WILL BE BY THE INSTALLING  
232) CONTRACTOR.

\*\*\*END OF SECTION

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7	2)	
1	3)	SCHEDULE
2	4)	MILESTONE DATES
7	5)	INVITATION FOR BIDS FEBRUARY 1, 1984.
7	6)	BID OPENING MARCH 1, 1984.
7	7)	CONTRACT AWARD APRIL 1, 1984.
7	8)	NOTICE TO PROCEED APRIL 1, 1984.
7	9)	DELIVERY OF SIX CHILLERS NOVEMBER 1, 1984.
7	10)	TENTATIVE BENEFICIAL
	11)	ACCEPTANCE OF TWO
	12)	CHILLERS APRIL 1, 1985.
7	13)	TENTATIVE BENEFICIAL
	14)	ACCEPTANCE OF FOUR
	15)	CHILLERS APRIL 1, 1986.

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- |   |     |   |
|---|-----|---|
| 1 | 1)  | CENTRAL LIQUID CHILLER REFRIGERATION MACHINES                             |
| 2 | 2)  | FURNISH SIX (6) CENTRIFUGAL LIQUID CHILLER UNITS, WITH SPECIFIED          |
|   | 3)  | ACCESSORIES; CHILLER MANUFACTURER'S SHALL BE: YORK, CARRIER OR TRANE.     |
| 2 | 4)  | FOR OPERATING ECONOMY, THE CHILLERS SHALL BE CAPABLE OF STARTING AND      |
|   | 5)  | OPERATING AT MINIMUM LOAD WITH THE ENTERING CONDENSER WATER TEMPERATURE   |
|   | 6)  | AT LEAST AS LOW AS 55 DEG. F.   |
| 2 | 7)  | CHILLER PERFORMANCE SHALL BE RATED IN ACCORDANCE WITH THE AIR             |
|   | 8)  | CONDITIONING AND REFRIGERATION INSTITUTE (ARI) STANDARD 550; AMERICAN     |
|   | 9)  | NATIONAL STANDARDS INSTITUTE (ANSI) B9.1 AND B31.5, LATEST EDITIONS.      |
| 2 | 10) | EACH UNIT SHALL BE A COMPLETE FACTORY PACKAGE INCLUDING A CENTRIFUGAL     |
|   | 11) | COMPRESSOR, OPEN OR HERMETIC MOTOR, COMPRESSOR MOTOR STARTER, COOLER,     |
|   | 12) | CONDENSER AND PURGE OR PUMPOUT UNIT. UNIT SHALL BE FACTORY ASSEMBLED,     |
|   | 13) | PIPED, WIRED AND LEAK TESTED. IF THE MANUFACTURER DOES NOT PROVIDE A UNIT |
|   | 14) | AS A COMPLETE FACTORY PACKAGE, THE INSTALLING CONTRACTOR WILL FURNISH THE |
|   | 15) | NECESSARY LABOR AND MATERIAL TO COMPLETE THE ASSEMBLY WITH THE            |
|   | 16) | SUPERVISION OF THE MANUFACTURER'S REPRESENTATIVE. MANUFACTURER OF CHILLER |
|   | 17) | SHALL HAVE A FACTORY MAINTAINED SERVICE ORGANIZATION AND REPAIR PARTS     |
|   | 18) | STOCK WITHIN A 50 MILE RADIUS. ALL COMPONENTS SHALL BE PROVIDED WITH      |
|   | 19) | LIFTING EYES.   |
| 2 | 20) | EVAPORATOR AND CONDENSER SHALL BE OF SHELL AND TUBE TYPE DESIGN IN        |
|   | 21) | ACCORDANCE WITH REQUIREMENTS OF THE ASME CODE FOR UNFIRED PRESSURE        |
|   | 22) | VESSELS. REFRIGERANT SIDE SHALL BE PROOF-TESTED PER APPLICABLE CODE OR AT |
|   | 23) | 1.5 TIMES MAXIMUM DESIGN WORKING PRESSURE BUT NOT LESS THAN 45 PSIG. A    |
|   | 24) | SAFETY RUPTURE DISC IN ACCORDANCE WITH ANSI/ASHRAE 15-1978 SAFETY CODE    |
|   | 25) | SHALL BE PROVIDED FOR THE REFRIGERANT CIRCUIT.                            |
| 2 | 26) | EACH TUBE SHALL BE INTEGRAL, EXTERNALLY FINNED, 3/4-INCH NOMINAL          |
|   | 27) | DIAMETER, .025 INCH WALL THICKNESS, SEAMLESS COPPER WITH SMOOTH LANDS AT  |
|   | 28) | ALL TUBE SUPPORTS. TUBES SHALL BE INDIVIDUALLY REPLACEABLE WITH TUBE ENDS |
|   | 29) | ROLLED INTO ANNULAR GROOVES IN THE TUBE SHEETS. EACH EVAPORATOR TUBE      |
|   | 30) | SHALL BE ROLLED INTO THE INTERMEDIATE SUPPORT SHEETS.                     |
| 2 | 31) | WATER BOXES SHALL BE DESIGNED FOR 150 PSIG MAXIMUM WORKING PRESSURE.      |
|   | 32) | WATER SIDE SHALL BE HYDROSTATICALLY TESTED AT 1.5 TIMES WORKING PRESSURE. |
|   | 33) | WATER BOXES SHALL BE PROVIDED WITH WELDED STUBS. TAPS FOR VENTS AND       |
|   | 34) | DRAINS ALSO SHALL BE PROVIDED.  |
| 2 | 35) | EVAPORATOR SHALL HAVE ELIMINATORS INSTALLED ALONG ITS COMPLETE LENGTH     |
|   | 36) | ABOVE THE TUBES TO PREVENT LIQUID REFRIGERANT FROM ENTERING THE           |
|   | 37) | COMPRESSOR.   |
| 2 | 38) | LIQUID REFRIGERANT ENTERING EVAPORATOR SHALL BE DISTRIBUTED UNIFROMLY THE |
|   | 39) | ENTIRE LENGTH OF SHELL AND WITHOUT DIRECT IMPINGEMENT OF HIGH VELOCITY    |
|   | 40) | REFRIGERANT ON TUBES.   |
| 2 | 41) | FOR STANDARD WATER SELECTIONS, MINIMUM ALLOWABLE REFRIGERANT TEMPERATURE  |
|   | 42) | SHALL BE 34 F. AT THE DESIGN CONDITIONS HEREINAFTER SPECIFIED.            |
| 2 | 43) | RELIEF DEVICES SHALL BE PROVIDED FOR THE REFRIGERANT SIDE, IN ACCORDANCE  |
|   | 44) | WITH ANSI B9.1 SAFETY CODE AND LOCAL CODE. MULTIPLE RELIEF DEVICES SHALL  |
|   | 45) | BE BROUGHT TO A COMMON VENT CONNECTION.                                   |
| 2 | 46) | COMPRESSOR SHALL BE OF THE CENTRIFUGAL TYPE, DIRECT OR GEAR-DRIVEN.       |
|   | 47) | MAXIMUM SPEED FOR GEAR DRIVEN MACHINES SHALL BE 7000 RPM.                 |
| 2 | 48) | COMPRESSOR IMPELLERS SHALL BE HIGH STRENGTH ALUMINUM ALLOY, BALANCED BOTH |
|   | 49) | STATICALLY AND DYNAMICALLY. IMPELLER SHALL BE PROOF-TESTED AT LEAST 15    |
|   | 50) | PERCENT ABOVE DESIGN OPERATING SPEED.                                     |



- 2 51) COMPRESSOR ASSEMBLY SHALL BE RUN-TESTED AT THE FACTORY. VIBRATION SHALL  
52) NOT EXCEED 1.0 MIL AT THE COMPRESSOR HOUSING.
- 2 53) CAPACITY CONTROL SHALL BE BY VARIABLE INLET GUIDE VANES, CAPABLE OF  
54) MODULATING PERFORMANCE FROM 10 PERCENT TO 100 PERCENT RATED UNIT CAPACITY  
55) AT DESIGN CONDITIONS. MINIMUM CAPACITY OF 10 PERCENT SHALL BE ATTAINED  
56) WITHOUT SURGING OR ADJUSTING REFRIGERANT CHARGE. AUTOMATIC HOT GAS  
57) BYPASS, IF REQUIRED, SHALL BE PROVIDED TO ALLOW OPERATION AT 10 PERCENT  
58) LOAD. MINIMUM CONDENSER WATER TEMPERATURE IS TO BE 55 DEGREES F.
- 2 59) MOTOR SHALL BE CONTINUOUS DUTY, SQUIRREL CAGE INDUCTION TYPE, AND SHALL  
60) HAVE AN OPEN DRIP-PROOF OR HERMETIC DESIGN ENCLOSURE. MOTOR FULL-LOAD  
61) AMPERES (FLA) AT DESIGN CONDITIONS SHALL NOT EXCEED MOTOR NAMEPLATE FLA.  
62) MOTOR SHALL BE FACTORY MOUNTED AND ALIGNED WITH THE COMPRESSOR. MOTOR  
63) SHALL BE DESIGNED FOR USE WITH THE TYPE STARTER SPECIFIED.
- 2 64) A POSITIVE DISPLACEMENT SUBMERGED OIL PUMP SHALL PROVIDE LUBRICATION TO  
65) ALL PARTS REQUIRING OIL. PROVISIONS SHALL BE INCLUDED FOR CONTROLLED  
66) HEATING OF OIL. HEATER SHALL BE SELECTED TO MAINTAIN OIL AT 150 DEGREES  
67) F. DURING SHUT-DOWN TO MINIMIZE AFFINITY FOR REFRIGERANT. THE OIL PUMP  
68) SHALL BE SUITABLE FOR OPERATION ON 120-VOLT SINGLE PHASE POWER. THIS  
69) POWER SHALL BE SUPPLIED THROUGH THE CONTROL POWER TRANSFORMER.
- 2 70) THE UNIT MANUFACTURER SHALL PROVIDE A FULLY AUTOMATIC, FACTORY INSTALLED  
71) OIL RETURN SYSTEM TO REMOVE THE OIL FROM THE LIQUID REFRIGERANT DURING  
72) CHILLER OPERATION. THE OIL RETURN SYSTEM SHALL CONTINUOUSLY MAINTAIN THE  
73) PROPER OIL LEVEL IN THE COMPRESSOR OIL SUMP AND PREVENT THE COLLECTION OF  
74) OIL IN THE EVAPORATOR.
- 2 75) LUBRICATION SYSTEM SHALL BE PROVIDED WITH TWO HIGH OIL TEMPERATURE  
76) CUTOUTS: ONE IN THE BEARING OIL OUTLET AND ONE IN THE OIL PUMP DISCHARGE.
- 2 77) A REFRIGERANT OR WATER COOLED OIL COOLER SHALL BE PROVIDED. EXTERNAL  
78) WATER SOURCE TO BE CHILLED WATER. IF THE OIL COOLER IS WATER COOLED THE  
79) INSTALLING CONTRACTOR WILL FURNISH AND INSTALL NECESSARY AUXILIARY WATER  
80) PIPING, VALVES AND CONTROLS TO THE OIL COOLER. COMPLETE LUBRICATION  
81) SYSTEM SHALL BE FACTORY INSTALLED AND PIPED.
- 2 82) MOTOR WINDING TEMPERATURE SENSORS SHALL BE LOCATED IN THE MOTOR WINDING  
83) OF EACH PHASE OF COMPRESSOR MOTORS. SENSORS SHALL INDEPENDENTLY STOP THE  
84) COMPRESSOR MOTOR IF EXCESSIVE TEMPERATURE IS SENSED IN ANY OF THE THREE  
85) WINDINGS. A FULL SET OF SPARE SENSORS SHALL BE PROVIDED WITH WIRING TO  
86) CONTROL PANEL.
- 2 87) LOW VOLTAGE AND SINGLE-PHASE PROTECTION (PHASE FAILURE) SHALL BE PROVIDED  
88) BY MEANS OF AN ANSI NO. 47 SEQUENCE VOLTAGE RELAY.
- 2 89) UNITS THAT OPERATE AT SUB-ATMOSPHERIC PRESSURE (R-11, R-113, R-114) SHALL  
90) BE PROVIDED WITH A COMPLETE PURGE UNIT, PROVIDING POSITIVE MEANS FOR  
91) COLLECTION, RETURN OF REFRIGERANT AND REMOVAL OF NON-CONDENSABLES. A  
92) SIGNAL LIGHT ON THE CONTROL CENTER SHALL BE PROVIDED WHICH WILL ALERT THE  
93) OPERATOR AT OCCURRENCE OF EXCESSIVE PURGING, INDICATING AN ABNORMAL AIR  
94) LEAK INTO THE UNIT.
- 2 95) PURGE UNIT SHALL BE PROVIDED WITH THE FOLLOWING:
- 7 96) SIGHT GLASS OIL LEVEL INDICATOR.
- 7 97) ELECTRICALLY HEATED OIL SEPARATOR.
- 7 98) SECTIONALIZED DRUM PERMITTING SEPARATION OF NONCONDENSABLE  
99) GASES AND WATER FROM DISCHARGE OF COMPRESSOR PURGE.
- 7 100) MEANS FOR RETURNING REFRIGERANT TO EVAPORATOR AND FOR  
101) DRAWING OFF NONCONDENSABLES.

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- 7 102) SOLENOID VALVE TO AUTOMATICALLY ISOLATE PURGE SYSTEM  
103) FROM CENTRIFUGAL MACHINE WHEN PURGE COMPRESSOR IS NOT  
104) IN OPERATION.
- 7 105) WATER CONNECTIONS TO ALLOW OPERATION OF THE PURGE  
106) SYSTEM WHEN CENTRIFUGAL MACHINE IS NOT IN OPERATION.
- 2 107) UNITS THAT OPERATE ABOVE 15 PSIG (R12, R-22, R-500) SHALL BE PROVIDED  
108) WITH A SEPARATE COMPRESSOR OPERATED TRANSFER UNIT AND SEPARATE STORAGE  
109) RECEIVER TO PERMIT REMOVAL AND ISOLATION OF THE FULL REFRIGERANT CHARGE  
110) ALLOWING INTERNAL INSPECTION OF THE CONDENSER, EVAPORATOR AND CENTRIFUGAL  
111) COMPRESSOR. THE STORAGE RECEIVER SHALL BE ASME CODE CONSTRUCTED AND  
112) STAMPED, AND FURNISHED WITH ANSI B9.1 SAFETY CODE AND LOCAL CODE. PUMPOUT  
113) SYSTEM SHALL BE SUPPLIED AND WARRANTED BY THE CENTRIFUGAL MACHINE  
114) MANUFACTURER. IT SHALL BE PRE-PIPED AND PRE-WIRED COMPLETE WITH FUSED  
115) DISCONNECT, STARTER AND CONTROLS HOUSED IN A NEMA 1 ENCLOSURE. EACH UNIT  
116) SHALL HAVE ITS OWN COMPLETE PUMP-OUT SYSTEM. THE INSTALLING CONTRACTOR  
117) WILL FURNISH AND INSTALL NECESSARY AUXILIARY WATER PIPING AND VALVES TO  
118) TRANSFER UNIT CONDENSER.
- 2 119) EACH CHILLER SHALL BE EQUIPPED WITH AN ELECTRIC CONTROL PANEL AND INCLUDE  
120) THE FOLLOWING.
- 3 121) THREE-PHASE ELECTRONIC CURRENT LIMITING WITH INDIVIDUAL CURRENT  
122) TRANSFORMERS.
- 4 123) ELECTRONIC CURRENT LIMITER SHALL LIMIT THE MAXIMUM AMPERAGE DRAWN  
124) BY THE COMPRESSOR MOTOR BY MONITORING ALL THREE PHASES OF SUPPLY  
125) POWER. THE INLET GUIDE VANES SHALL MODULATE IN RESPONSE TO THE  
126) MAXIMUM AMPERAGE DRAWN BY ANY ONE OF THE THREE PHASES.
- 4 127) CONTINUOUS VARIABLE POSITION DEMAND LIMITER SHALL PERMIT MANUAL  
128) CONTROL OF POWER DEMAND AT ALL OPERATING POINTS FROM 40 TO 100  
129) PERCENT OF FULL LOAD POWER.
- 3 130) CAPACITY CONTROL
- 4 131) SELF-CONTAINED ELECTRIC TEMPERATURE CONTROL SYSTEM, INCLUDING  
132) TEMPERATURE SENSOR, VANE ACTUATOR AND INTEGRATED CIRCUIT SOLID  
133) STATE CONTROLS.
- 4 134) PRECISE CONTROL OF DEADBAND RANGE SHALL BE FIELD ADJUSTABLE FROM  
135) PLUS OR MINUS 1/4 DEG. F TO PLUS OR MINUS 1-1/2 DEG. F.
- 4 136) UNIT SHALL INCLUDE A MANUAL FOUR-POSITION (HOLD, LOAD, UNLOAD OR  
137) AUTOMATIC) DIAGNOSTIC SWITCH FOR EASE OF MAINTENANCE.
- 4 138) INDIVIDUAL LIGHTS SHALL INDICATE WHEN MACHINE IS LOADING,  
139) UNLOADING, OR IF AUTOMATIC CURRENT LIMITING IS OCCURRING.
- 4 140) LOW REFRIGERANT TEMPERATURE OVERRIDE TO AUTOMATICALLY CLOSE THE  
141) GUIDE VANES AND STOP THE COMPRESSOR IF LOW REFRIGERANT TEMPERATURE  
142) IS DETECTED.
- 4 143) A METHOD TO MAINTAIN CAPACITY INLET GUIDE VANES IN CLOSED POSITION  
144) DURING COMPRESSOR START-UP.
- 4 145) AN ADJUSTABLE ANTIRECYCLE TIMER TO ENSURE 30-MINUTE INTERVAL  
146) BETWEEN SUCCESSIVE COMPRESSOR MOTOR STARTS. TIMER TO BE ACTIVATED  
147) AT "START".
- 4 148) INDIVIDUAL, FRONT ADJUSTABLE GAUGES TO INDICATE CONDENSER,  
149) EVAPORATOR, OIL AND PURGE DRUM PRESSURES. GAUGES SHALL BE ORIFICED  
150) TO PREVENT EXCESSIVE SENSITIVITY AND MOVEMENT OF GAUGE INDICATORS.
- 4 151) TIMER TO PROVIDE OPERATION OF OIL PUMP DURING PRELUBE AND POST-LUBE  
152) CYCLES.

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- 4 153) SWITCH TO PERMIT MANUAL OR AUTOMATIC OPERATION OF THE PURGE SYSTEM.
- 4 154) THE FOLLOWING SAFETY CONTROLS SHALL BE WIRED IN THE MAIN CONTROL  
155) POWER CIRCUIT TO THE STARTER: LOW EVAPORATOR TEMPERATURE, HIGH  
156) CONDENSER PRESSURE, HIGH MOTOR TEMPERATURE, HIGH LUBE OIL  
157) TEMPERATURE AND LOW OIL PRESSURE CONTROLS SHALL BE WIRED TO  
158) INDEPENDENTLY STOP THE COMPRESSOR MOTOR. ADDITIONALLY, EACH OF  
159) THESE CONTROLS SHALL BE WIRED THROUGH A FAULT TRIP INDICATOR TO  
160) PROVIDE A DOUBLE BREAK OF ALL SAFETY LOCKOUT SYSTEMS. METHOD TO  
161) PROVIDE FIRST-OUT INDICATION OF FAULT SHALL BE PROVIDED. MANUAL  
162) RESET OF THE FAULT TRIP INDICATOR SHALL BE REQUIRED.
- 4 163) ONE ADDITIONAL NORMALLY CLOSED ALARM CONTACT (CONVERTIBLE TO  
164) NORMALLY OPEN CONTACTS ON EACH FAULT TRIP INDICATOR) TO ALLOW  
165) REMOTE ANNUNCIATION OF ANY OF THE FOLLOWING CONDITIONS: LOW  
166) EVAPORATOR TEMPERATURE, HIGH CONDENSER PRESSURE, HIGH MOTOR  
167) TEMPERATURE, LOW OIL PRESSURE AND ELECTRICAL OVERLOAD.
- 4 168) A 4160/120 VOLT TRANSFORMER SHALL SUPPLY 120-VOLT POWER SUPPLIES  
169) INDIVIDUALLY FUSED TO SERVE: CONTROL CIRCUIT, OIL PUMP SYSTEM  
170) CIRCUIT, OIL HEATER CIRCUIT AND PURGE CIRCUIT.
- 4 171) FACTORY INSTALLED CONTROL PANEL LIGHTS TO INDICATE SEQUENTIAL  
172) START-UP AND OPERATION OF THE CHILLER, INCLUDING: SAFETIES,  
173) SATISFIED, COOLING REQUIRED, RESTART TIME ELAPSED, CHILLED WATER  
174) PUMP, CONDENSER WATER PUMP, OIL PUMP AND SYSTEM. PROVIDE ELAPSED  
175) TIME METER AND STARTS COUNTER.
- 4 176) CAPABILITY OF INTERFACING WITH TYPICAL BUILDING ENERGY MANAGEMENT  
177) SYSTEMS (DIRECT CURRENT LOAD SHED SIGNALS) TO REDUCE TOTAL  
178) ELECTRICAL PEAK DEMAND.
- 4 179) CAPACITY CONTROL MECHANISM WHICH PROVIDES UNLOADED START-UP.
- 2 180) EACH UNIT SHALL BE FACTORY ANTI-SWEAT INSULATED WITH FLEXIBLE CLOSED CELL  
181) INSULATION. INSULATION SHALL BE APPLIED TO THE COOLER PORTION OF THE  
182) SHELL AT MINIMUM THICKNESS 3/4 INCH. THE SAME TYPE INSULATION SHALL BE  
183) APPLIED TO COMPRESSOR SUCTION PIPING AND OTHER REFRIGERANT PIPING AS  
184) NECESSARY.
- 2 185) THE UNIT MANUFACTURER SHALL FURNISH THE COMPLETE INITIAL CHARGE OF  
186) REFRIGERANT AND LUBRICATING OIL, CHILLED WATER AND CONDENSER WATER FLOW  
187) SWITCHES, AND FOUR VIBRATION ISOLATION MOUNTS CONSISTING OF 5/8 INCH  
188) STEEL MOUNTING PLATES WITH 1 INCH THICK NEOPRENE ISOLATION PADS.
- 2 189) REMOTE MOUNTED STARTERS
- 3 190) COMPRESSOR MOTOR STARTER SHALL BE SUPPLIED BY THE CENTRIFUGAL CHILLER  
191) MANUFACTURER. STARTER SHALL BE A 5 KV PRIMARY REACTOR TYPE ENCLOSED IN  
192) A FREE STANDING NEMA-1 ENCLOSURE.
- 3 193) THE STARTER PANEL DOOR SHALL BE HINGED AND SHALL BE CAPABLE OF BEING  
194) PADLOCKED TO PREVENT ACCESS BY UNAUTHORIZED PERSONNEL.
- 3 195) THE AMBIENT TEMPERATURE INSIDE THE STARTER PANEL SHALL NOT EXCEED 155  
196) DEG. F (67 DEG. C) WITH ALL COMPONENTS ENERGIZED AT RATED LOAD  
197) CONDITIONS AND 134 DEG. F (40 DEG. C) AMBIENT OUTSIDE THE STARTER  
198) PANEL. TEMPERATURE RISE OF COMPONENTS SHALL BE PER RELATED NEC, NEMA  
199) AND UL CODES.
- 3 200) A PERMANENT NAMEPLATE SHALL BE PROVIDED AND MOUNTED ON THE STARTER  
201) PANEL. IT SHALL IDENTIFY THE MANUFACTURER, SERIAL OR MODEL NUMBER  
202) IDENTIFYING THE DATE OF MANUFACTURE AND COMPONENT REPLACEMENT PARTS  
203) AND ALL CURRENT AND VOLTAGE RATINGS.

- 4 204) THE OVERLOAD SYSTEM, CONSISTING OF ANSI NO. 50 INSTANTANEOUS  
205) OVERCURRENT OR RATE OF RISE RELAYS, SHALL BE COORDINATED WITH THE  
206) COMPRESSOR MOTOR AND FACTORY SET AND LABELED WITH THE COMPRESSOR  
207) MOTOR RATED LOAD AMPS (RLA), LOCKED ROTOR AMPS (LRA) AND OVERLOAD  
208) TRIP (OLT) SETTINGS, AND SHALL PROVIDE:
- 5 209) EXCESSIVE LOCKED ROTOR TIME PROTECTION.
- 5 210) CURRENT CONTROL OF TRANSITION FROM START TO RUN CONFIGURATION.
- 5 211) MAXIMUM CURRENT PROTECTION TO PREVENT THE COMPRESSOR MOTOR FROM  
212) EXCEEDING ITS OLT SETTING.
- 5 213) PROTECTION OF EQUIPMENT AGAINST TRANSITION RESISTOR FAILURE.
- 5 214) A FAULT TRIP INDICATOR, "MOTOR OVERLOAD" SHALL BE LOCATED IN  
215) THE DOOR OF THE STARTER PANEL ENCLOSURE. THIS FAULT INDICATOR  
216) SHALL BE DISPLAYED IF ANY OF THE ABOVE CONDITIONS ARE SENSED AND  
217) SHALL CAUSE THE MACHINE TO BE SHUT DOWN. THIS FAULT SHALL  
218) REQUIRE MANUAL RESET. ELECTRONIC DIGITAL TIMING SHALL BE  
219) PROVIDED BY THE OVERLOAD SYSTEM FOR REPEATABILITY AND ACCURACY.  
220) A NORMALLY CLOSED ALARM CONTACT SHALL BE PROVIDED FOR REMOTE  
221) ANNUNCIATION OF ANY OF THE ABOVE CONDITIONS.
- 4 222) THE THREE-PHASE OVERLOAD SYSTEM SHALL BE FIELD SET FOR PURPOSES OF  
223) COORDINATION WITH OTHER ELECTRICAL PROTECTION DEVICES.
- 3 224) TO PREVENT THE INCREASINGLY COMMON RAPID RECLOSURE FEATURE OF UTILITY  
225) POWER DISTRIBUTION SYSTEMS FROM ADVERSELY AFFECTING THE MECHANICAL AND  
226) POWER DRIVE EQUIPMENT, DISTRIBUTION FAULT PROTECTION SHALL BE  
227) PROVIDED.
- 4 228) THE DISTRIBUTION FAULT PROTECTION SHALL CONSIST OF THREE-PHASE  
229) CURRENT SENSING AND MONITORING THE STATUS OF THE STARTER. IF A  
230) DISTRIBUTION FAULT IS DETECTED, THE FAULT TRIP INDICATOR  
231) "DISTRIBUTION FAULT" SHALL BE DISPLAYED AND MANUAL RESET SHALL BE  
232) REQUIRED. DISTRIBUTION FAULTS OF 1-1/2 ELECTRICAL CYCLES DURATION  
233) SHALL BE DETECTED AND THE COMPRESSOR MOTOR SHALL BE DISCONNECTED  
234) WITHIN SIX ELECTRICAL CYCLES.
- 3 235) DIFFERENTIAL PROTECTION
- 4 236) ALL MOTOR ARMATURE LEADS SHALL BE EXTENDED FOR THE APPLICATION OF  
237) DIFFERENTIAL RELAYING PROTECTION. PROVIDE SIX CURRENT TRANSFORMERS  
238) (MATCHED) AND THREE DIFFERENTIAL RELAYS (ANSI NO. 87).
- 3 239) POWER SUPPLY TERMINALS SHALL BE IDENTIFIED BY PERMANENT MARKERS. THE  
240) MAXIMUM TEMPERATURE OF TERMINALS SHALL NOT EXCEED 167 DEG. F (75 DEG.  
241) C) WHEN THE EQUIPMENT IS TESTED IN ACCORDANCE WITH ITS RATING.
- 3 242) CONTACTORS SHALL BE UL-RECOGNIZED FOR AIR CONDITIONING AND  
243) REFRIGERATION (DEFINITE PURPOSE) USE. THEY SHALL BE RATED IN VOLTAGE,  
244) CONTINUOUS RATED LOAD AMPERES (RLA) AND LOCKED ROTOR AMPERES (LRA).  
245) THE RATING SHALL BE EQUAL TO OR GREATER THAN THE REQUIREMENTS SPECIFIED  
246) ON THE COMPRESSOR MOTOR NAMEPLATE.
- 3 247) ALL WIRES, BUS BARS AND FITTINGS SHALL BE COPPER ONLY, EXCEPT THE  
248) INTERNAL WIRE OF THE CONTROL TRANSFORMER WHICH MAY BE ALUMINUM IF  
249) COPPER TERMINATION IS PROVIDED.
- 3 250) DISCONNECTING MEANS IN THE FORM OF A NON-LOAD BREAK, HIGH INTERRUPTING  
251) CAPACITY (34,000 AMPS RMS SYMMETRICAL), FUSED DISCONNECT SHALL BE  
252) PROVIDED FOR SHORT CIRCUIT PROTECTION.
- 3 253) A 120-VOLT SINGLE-PHASE POWER SUPPLY SHALL BE DEVELOPED WITHIN THE  
254) THREE-PHASE COMPRESSOR MOTOR STARTER AND SHALL BE IN ACCORDANCE WITH  
255) THE CHILLER MANUFACTURER'S SPECIFICATIONS. A METALLIC SEPARATOR SHALL  
256) BE PROVIDED BETWEEN THE HIGH AND LOW VOLTAGE SYSTEMS SECTIONS.

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- 3 257) THE STARTER SHALL BE EQUIPPED WITH TWO "PILOT" RELAYS TO INITIATE  
258) THE MAIN CENTRIFUGAL STARTER SEQUENCE. THESE RELAYS SHALL BE A  
259) SELF-MONITORING SAFETY CIRCUIT WHICH SHALL INDICATE IMPROPER OPERATION  
260) (SLOW OPERATION, WELDING OF CONTACTS, ETC.) AND SHALL CAUSE THE UNIT  
261) TO BE SHUT DOWN AND A FAULT TRIP INDICATOR TO BE DISPLAYED. THE  
262) "STARTER CIRCUIT FAULT" INDICATOR SHALL BE LOCATED IN THE DOOR OF  
263) THE ENCLOSURE AND SHALL REQUIRE MANUFAL RESET.
- 3 264) A LOCKOUT TRANSITION SAFETY CIRCUIT SHALL BE PROVIDED TO PREVENT  
265) DAMAGE FROM PROLONGED ENERGIZATION DUE TO MALFUNCTION OF THE  
266) TRANSITION CONTACTOR. MALFUNCTION SHALL CAUSE THE MACHINE TO BE SHUT  
267) DOWN AND THE "STARTER CIRCUIT FAULT" INDICATOR TO BE DISPLAYED.
- 3 268) THE THREE-PHASE OVERLOAD SYSTEM SHALL PROVIDE PROTECTION TO THE  
269) COMPRESSOR MOTOR.
- 3 270) TERMINAL CONNECTION PADS SHALL BE PROVIDED TO WHICH CUSTOMER APPLIED  
271) LUGS CAN BE ATTACHED. PROVIDE SUFFICIENT SPACE FOR STRESS CONE  
272) TERMINATION.
- 3 273) PROVIDE THREE (3) AMMETERS CALIBRATED FOR INDICATING INRUSH CURRENT.
- 3 274) A GROUND FAULT RELAY (ANSI NO. 64) SHALL OPEN STARTER CONTACTS WHEN  
275) THE DIELECTRIC RESISTANCE IS SIGNIFICANTLY REDUCED IN EITHER THE  
276) STARTER OR COMPRESSOR MOTOR. INDICATION AND RESET SHALL BE LOCATED IN  
277) THE STARTER DOOR.
- 2 278) CAPACITY
- 3 279) EACH OF THE SIX UNITS SHALL HAVE A MINIMUM CAPACITY OF 1350 TONS OF  
280) REFRIGERATION, DELIVERING 2025 GPM OF CHILLED WATER COOLED FROM 58 DEG  
281) F. TO 42 DEG F. WHEN SUPPLIED WITH 4050 GPM OF CONDENSER WATER AT 85  
282) DEG F. WITH A 10 DEG F. TEMPERATURE RISE.
- 3 283) WATER TUBE VELOCITY THRU THE CONDENSER AND THE CHILLER SHALL NOT  
284) EXCEED 8 FPS.
- 3 285) CONDENSER AND CHILLER SIDE FOULING FACTORS SHALL BE .0005.
- 2 286) FACTORY TESTS
- 3 287) A FACTORY TEST OF EACH MACHINE SHALL INCLUDE THE FOLLOWING:
- 4 288) HYDROSTATIC STRENGTH TEST AND REFRIGERANT LEAK TEST OF COMPRESSOR  
289) CASING.
- 4 290) AIR PRESSURE STRENGTH TEST AND REFRIGERANT LEAK TEST ON BOTH THE  
291) SHELL AND TUBE SIDES OF THE CONDENSER, EVAPORATOR, INTER COOLER AND  
292) PUMPOUT RECEIVER (WHERE APPLICABLE).
- 2 293) START-UP SERVICE
- 3 294) MANUFACTURER SHALL FURNISH A FACTORY-TRAINED SERVICE ENGINEER DURING  
295) THE START-UP PERIOD OF EACH MACHINE. THE SERVICE ENGINEER SHALL  
296) PERFORM LEAK TESTING, EVACUATION AND DEHYDRATION USING A HIGH VACUUM  
297) PUMP FURNISHED BY THE MANUFACTURER, CHARGING THE UNIT, START-UP AND  
298) INSTRUCTION OF GOVERNMENT'S PERSONNEL ON OPERATION AND MAINTENANCE.  
299) START-UP SHALL BE PERFORMED BY THE MANUFACTURE'S SERVICE ENGINEER;  
300) SUPERVISION OF CONTRACTOR PERSONNEL PERFORMING THE START-UP WORK, IS  
301) NOT ACCEPTABLE. MANUFACTURER SHALL PROVIDE OPERATING INSTRUCTIONS AND  
302) PARTS LIST. REFER TO SPECIAL CONDITIONS. THE COST OF THIS START-UP  
303) SERVICE SHALL BE INCLUDED IN THE MANUFACTURER'S BID PRICE.
- 3 304) THE MANUFACTURER SHALL PROVIDE THE GOVERNMENT EXTRA REFRIGANT AND OIL  
305) OF A SUFFICIENT QUANTITY TO COMPLETELY RE-CHARGE ONE MACHINE.
- 3 306) THE MANUFACTURER SHALL PROVIDE THE GOVERNMENT WITH COOLER AND  
307) CONDENSER TUBE BRUSHES.